

CLAIM AMENDMENTS

1. (Previously Presented) A method of demultiplexing a statistically multiplexed MPEG transport stream into a constant bit rate single program transport stream comprising the steps of:

separating a specified single program transport stream including a variable bit rate program composed of a sequence of pictures, each picture having a decode time stamp, from the statistically multiplexed MPEG transport stream;

loading each picture from the variable bit rate program into a smoothing buffer, the loading commencing a specified amount of time prior to the time indicated by the picture's decode time stamp; and

transferring the picture from the smoothing buffer at a desired constant bit rate at the time indicated by the picture's decode time stamp for decoding.

2. (Previously Presented) The method as recited in claim 1 further comprising the step of replacing B-type pictures at the input to the buffer with null B-type pictures when the smoothing buffer is in an overflow condition until the overflow condition ceases.

3. (Currently Amended) The method as recited in claim 1 wherein said specified amount of time is equal for all pictures of the sequence and, in the event a picture cannot be loaded into the smoothing buffer the specified amount of time prior to the time indicated by the picture's decode time stamp, it is loaded into the smoothing buffer as soon as possible thereafter.

4-5 (Cancelled)

6. (Previously Presented) A method according to claim 1, wherein the specified amount of time is proportional to a minimum acceptable size of said smoothing buffer and inversely proportional to said desired constant bit rate.

7. (Previously Presented) A method according to claim 3, wherein the decode time stamps are periodic, at a period P , the desired constant bit rate is R , a first picture of said sequence comprises X bits and commences loading at said specified amount of time prior to the first picture's decode time stamp, and an immediately succeeding second picture commences loading either at

said specified amount of time prior to said second picture's decode time stamp, if X is less than $R \cdot P$, or as soon as the loading of said first picture is completed, if X is greater than or equal to $R \cdot P$.

8-9 (Cancelled)

10. (Previously Presented) A method of demultiplexing a statistically multiplexed MPEG transport stream into a constant bit rate single program transport stream comprising the steps of:

separating a specified single program transport stream including a variable bit rate program composed of a sequence of pictures, each picture having a decode time stamp, from the statistically multiplexed MPEG transport stream;

loading a j 'th picture from the variable bit rate program into a smoothing buffer at a desired constant bit rate,

in the event that loading of the j 'th picture into the smoothing buffer is completed no later than a time δ before the time indicated by the decode time stamp of the $(j+1)$ 'th picture, loading the $(j+1)$ 'th picture into the smoothing buffer at said desired constant bit rate starting at the time δ before the time indicated by the decode time stamp of the $(j+1)$ 'th picture,

in the event that loading of the j 'th picture into the smoothing buffer is not completed until later than the time δ before the time indicated by the decode time stamp of the $(j+1)$ 'th picture, loading the $(j+1)$ 'th picture into the smoothing buffer at said desired constant bit rate starting substantially immediately after loading of the j 'th picture is completed, and

transferring the $(j+1)$ 'th picture from the smoothing buffer at the time indicated by the decode time stamp of the $(j+1)$ 'th picture.

11. (Previously Presented) A method according to claim 10, wherein the smoothing buffer has a capacity equal to said desired constant bit rate multiplied by δ .

12. (New) A method of adjusting bit rate of a variable bit rate single program transport stream having an average bit rate less than a desired constant bit rate and having a maximum bit rate greater than said desired constant bit rate, the single program transport stream being composed of a sequence of pictures each having a decode time stamp, the method comprising the steps of:

(a) loading a j'th picture of the sequence into a smoothing buffer,

(b) transferring the j'th picture from the smoothing buffer for decoding,

(c) (1) in the event that loading of the j'th picture into the smoothing buffer is completed no later than a time δ before the time indicated by the decode time stamp of the (j+1)'th picture, loading the (j+1)'th picture into the smoothing buffer at said desired constant bit rate starting at the time δ before the time indicated by the decode time stamp of the (j+1)'th picture,

(c) (2) in the event that loading of the j'th picture into the smoothing buffer is not completed until later than the time δ before the time indicated by the decode time stamp of the (j+1)'th picture, loading the (j+1)'th picture into the smoothing buffer at said desired constant bit rate starting substantially immediately after loading of the j'th picture is completed, and

(d) transferring the (j+1)'th picture from the smoothing buffer at the time indicated by the decode time stamp of the (j+1)'th picture.

13. (New) A method according to claim 12, wherein the single program transport stream is one stream of a statistically multiplexed MPEG transport stream having a plurality of variable bit rate single program streams multiplexed together and each composed of a sequence of pictures each having a decode time stamp, and the method comprises, before step (a):

providing a plurality of smoothing buffers for said plurality of single program transport streams respectively, and

separating said single program transport streams from the statistically multiplexed MPEG transport stream,

and step (a) comprises, for each single program transport stream, loading the j'th picture from the variable bit rate program into the smoothing buffer provided for that single program transport stream.

14. (New) A method according to claim 13, wherein step (c) (1) comprises, for each single program transport stream, in the event that loading of the j'th picture of the single program transport stream into the smoothing buffer provided for that single program transport stream is completed no later than a time δ before the time indicated by the decode time stamp of the (j+1)'th picture, loading

the (j+1)'th picture of the single program transport stream into the smoothing buffer provided for that single program transport stream at said desired constant bit rate starting at the time δ before the time indicated by the decode time stamp of the (j+1)'th picture.

15. (New) A method according to claim 14, wherein step (c)(2) comprises, for each single program transport stream, in the event that loading of the j'th picture of the single program transport stream into the smoothing buffer provided for that single program transport stream is not completed until later than the time δ before the time indicated by the decode time stamp of the (j+1)'th picture, loading the (j+1)'th picture of the single program transport stream into the smoothing buffer provided for that single program transport stream at said desired constant bit rate starting substantially immediately after loading of the j'th picture is completed.